REMARKS

Enclosed herein is a request for a two-month extension of time along with the appropriate fee.

In the Office Action mailed 2/7/02, Claims 9-18 were rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 9-18 were further rejected as being obvious over the prior art under 35 U.S.C.§103.

In response, Applicant has made amendment to independent Claims 9 and 14 in order to clarify the scope of these and the claims that depend therefrom.

Patentability of Claims 9 and 14, as amended

These claims stand rejected under 35 U.S.C. § 103 as being obvious over the *Fitzgerald*. Applicant respectfully traverses the rejection for reasons set forth after discussion of the teaching of this reference.

Fitzgerald, et al., U.S. Patent No. 3,586,027

Fitzgerald is an "Automatic Pressure Controller" "which controls the pressure in a vacuum chamber by regulating the flow of gas into or out of the chamber with a valve controlled by a double loop servosystem in which a position feedback signal from the valve prevents the valve from being moved past the equilibrium position to reduce 'hunting'." *Abstract*.

More specifically, *Fitzgerald* recites, in Claim 1 [*placed in outline form for clarity*]:

1. In a pressure control device:

   a. A chamber;

   b. a pump communicating with said chamber for evacuating the atmosphere therein;

   c. a valve forming a fluid coupling between the inside and outside of the chamber to regulate the chamber pressure;

   d. means responsive to deviation of the actual chamber pressure from the desired chamber pressure to generate an error signal;

   e. said chamber having a sufficiently large volume that a small volume of fluid introduced into or removed from the chamber will not appreciably change pressure in the chamber creating a time lag between movement of the valve and achievement of a desired chamber pressure;

   f. a feedback loop adapted to deliver a signal representative of the flow rate through the valve;

   g. means in the feedback loop to vary the magnitude of the signal representative of the flow rate through the valve relative to the magnitude of the error signal;

   h. means to combine the error signal and the signal representative of the flow rate through the valve to generate a modified error signal; and

   i. an actuator driven by the modified error signal acting to open and close said valve.

Independent claims 4, 5 and 11 recite substantially the same system combination.

Independent Claim 9 (as amended)

Amended Claim 9 recites [*presented in outline form for clarity*]:

A process for controlling the pressure within a chamber, comprising the steps of:

i. generating a pressure sensor signal responsive to the pressure in said chamber;

ii. generating a step command signal responsive to said pressure sensor signal and a tool logic signal, said step command signal generating comprising applying a pressure control algorithm to said pressure sensor and tool logic signals;

iii. generating a direction/speed command signal responsive to said step command signal and a valve position feedback signal, said direction/speed command signal generating comprising applying a position control algorithm to said step command and valve position feedback signals;

iv. actuating a valve responsive to said direction/speed command signal, said actuating resulting in said valve residing in a position, said valve in fluid communication with said chamber;

v. generating a valve position error feedback signal responsive to said position of said valve; and

vi. repeating said direction/speed command signal generating step, said actuating step and said valve position error generating step substituting said valve position error feedback signal for said valve position feedback signal.

A comparison of the limitations in the process of amended Claim 9 to the disclose and recitation of *Fitzgerald*, the following can be summarized:

in element 1.d.., the "means responsive to deviation of the actual chamber pressure from the desired chamber pressure to generate an error signal" recites the generation a pressure error signal;

in element 1.f.., the "signal representative of the flow rate through the valve" recites the generation of a valve position signal (in terms of flow rate);

in element 1.h., the "modified error signal," is "generated" from a combination of the pressure error signal and the valve position signal; and subsequently,

in element 1.i., the valve is opened and closed responsive to the "modified error signal."

In contrast, in amended claim 9, the following can be summarized as follows:

in element ii., the "step command signal" is generated by applying a "pressure control algorithm" to a "pressure sensor" signal and a "tool logic" signal; for the sake of this discussion, we will assume that the "step command signal" is the functional equivalent of what was called the "pressure error signal" above;

in element iii., the "direction/speed command signal" is a separate signal generated by applying a "position control algorithm" to the "step command signal" and a "valve position feedback" signal;

in element v., a "valve position *error* feedback signal" is generated; and then

in element vi., the valve is actuated responsive to a direction/speed command signal generated responsive to the "valve position error feedback signal."

The difference between amended claim 9 and the disclosure of *Fitzgerald* is/are at least that:

a. Claim 9 recites the generation of two distinct "control" signals – the step command signal and the direction/speed command signal. While the step command signal is an input into the direction/speed command signal, the two signals are distinct, and therefore the two algorithms can be adjusted independently.

b. While the step command signal may be functionally similar to the pressure error signal, and the original direction/speed command signal may be functionally similar to the modified error signal, there is no functional equivalent to the direction/speed command signal that is generated responsive to the valve position error feedback signal. This means that *Fitzgerald* fails to take valve positioning error into account when the valve operated; only the pressure error is considered.

c. *Fitzgerald* includes means to "vary the magnitude of the [valve position signal] relative to the magnitude of the [pressure error signal]" there is no such control necessity in the process of Claim 9.

d. *Fitgerald* recites a limitation in chamber size, namely, that it must have a "sufficiently large volume" to essentially dampen the response to pressure changes; there is no such limitation in Applicant's amended Claim 9.

Despite the Examiner's statement to the contrary, the system of *Fitzgerald* is not inherently capable of performing the method of amended Claim 9; in fact, it is Applicant's respectful position that the *Fitzgerald* system is non-functional to adequately control the pressure in a vessel by valve positioning.

Nothing in *Fitzgerald* hints or suggests that a valve position error signal should be used in the control of the valve position; in fact, *Fitzgerald* actually teaches away from this solution by simply using a "representation" of the valve flowrate/position, without incorporating any comparison of the valve's actual position to that position requested.

Furthermore, As stated by the Federal Circuit:

> "[o]bviousness cannot be established by combining the teachings of the prior art to produce the claimed

invention, absent some teaching suggestion or incentive supporting the combination."[1]

Furthermore, by combining the elements of various well-known decisions, one can see that a prima facie case of anticipation is established only when the Examiner provides:

1. one or more references[2]
2. that were available to the inventor[3]
3. where the reference(s) teach[4]
4. a suggestion to combine or modify the reference(s) [5]
5. the combination or modification of which would appear to be sufficient to have made the claimed invention obvious to one of ordinary skill in the art.[6]

If the Examiner fails to produce a prima facie case of unpatentability, "then without more the applicant is entitled to the grant of the patent."[7] It should be clear that items 4 and 5 (at least) have not been shown by the Examiner, and therefore a prima facie case of obviousness has not been made, and this claim should be allowed.

Patentability of Independent Claim 14, as amended

This Claim recites, in pertinent part, similar limitations to those presented in Claim 9, as amended. As such, it too is not obvious in view of *Fitzgerald* or any other cited reference, and this claim must be allowed.

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[1] See *In re Geiger*, 815 F.2d 686, 2 USPQ 2d 1276, 1278 (Fed. Cir. 1987).
[2] *W.L. Gore & Assocs. v. Garlock*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).
[3] *See In re Deminski*, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed. Cir. 1986).
[4] *Akzo N.V. v. U.S. Int'l Trade Comm'n*, 808 F.2d 1471, 1 USPQ 2d 1241, 1245 (Fed. Cir. 1986) (citing *In re Brown*, 329 F.2d 1006, 1011, 141 USPQ 245, 249 (CCPA 1964).
[5] *In re Lalu*, 747 F.2d 703, 223 USPQ 1257, 1258 (Fed. Cir. 1984).

Patentability of Dependent Claims 10-13 and 15-18

These claims depend from Claims 9 and 14; since claims 9 and 14 are new, novel and nonobvious, than these claims must necessarily be allowable.

Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully requests that the application be reconsidered, the claims be allowed, and the case passed to issue.

Respectfully submitted,

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[6] *Rockwell Int'l Corp. v. United States*, 147 F.3d 1358, 47 USPQ 2d 1027, 1033 (Fed. Cir. 1998).
[7] *In re Oetiker*, 977 F.2d 1444, 24 USPQ 2d 1444 (Fed. Cir. 1992).